The Lost Popularity Function:
Are Unemployment and Inflation no longer Relevant for the Behaviour of German Voters?

Gebhard Kirchgässner

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Abstract

Up to now there was a general conviction that increasing unemployment and inflation have a negative impact on the government's popularity. This was true for Germany as well, but it does not seem to hold any longer. This paper first reviews the results of earlier periods before presenting new results for the last part of the Kohl government after unification and for the Schröder government. While the results for the former show the known pattern, neither unemployment nor inflation is significant in the equations of the Schröder government, the latter has even the wrong sign. The missing impact of unemployment might be due to statistical reasons: the short observation period and the low variance of the explanatory variables. With respect to inflation, however, the citizens might have recognised that they cannot any longer hold the government responsible as the European Central Bank is performing monetary policy in Europe since 1999 and is, therefore, also responsible for price stability in Germany.

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1   Introduction

[1] It is common knowledge that the development of unemployment and inflation has an impact on the re-election chances of a government: the higher the unemployment and inflation rates, the worse are – ceteris paribus – the prospects of a government to win the next election. There exists a lot of empirical evidence for this presumption, not only for Germany, but also for the United States, the United Kingdom, and many other countries.[1] The most often cited example is the rise of the National Socialists in Germany in the first years of the thirties of the last century, which can hardly be explained without reference to the world economic crisis of that time and the mass unemployment connected with it.[2] But the impact of these two variables on the electoral success (or failure) of German governments from the fifties to the nineties can also be taken for sure, even if the corresponding evidence is based on survey and not on electoral data.
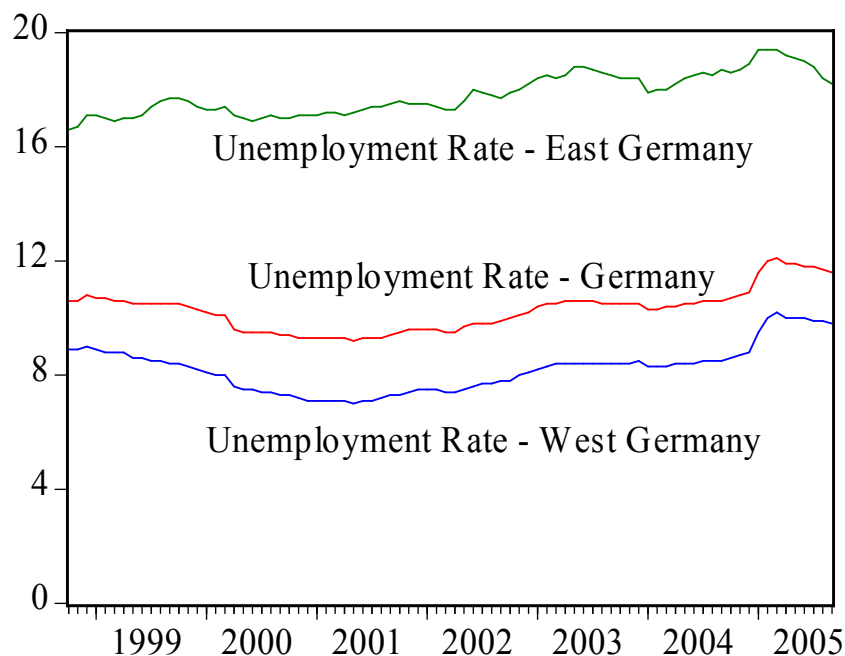

Figure 1:   Unemployment during the Schröder Government

[2] All this does no longer seem to hold for the Schröder Government from 1998 to 2005. When GERHARD SCHRÖDER started as German Chancellor, he told the voters that his performance should be evaluated according to his success in fighting unemployment. There was,

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1. Surveys are presented by M. PALDAM (1981) as well as P. NANNESTADT and M. PALDAM (1994), for Germany in particular by G. KIRCHGÄSSNER (1986). See also the contributions in *Electoral Studies* 19 (2000), issue 2/3.

2. There is solid empirical evidence in this respect, even if it is sometimes stated that unemployment had no major relevance for the rise of the National Socialists. For this evidence see, for example, B.S. FREY and H. WECK-HANNEMANN (1981). This holds despite the fact that – according to the results of J.W. FALTER et al. (1985) – with rising unemployment not so much the unemployed themselves but rather other groups of the population voted for the National Socialists. On the relation between economic development and the rise of National Socialism see also J.W. FALTER and R. ZINTL (1988) as well as A. V. RIEL and A. SCHRAM (1993).

however, hardly any success. As *Figure 1* shows, at the beginning of his government, unemployment went somewhat down in West and, therefore, also in the whole of Germany, reaching lowest (seasonally adjusted) values in May 2001 with 7.0 or 9.2 percent, respectively. But afterwards it increased more or less continuously again, reaching highest values in March 2005 with 10.2 or 12.1 percent, respectively. Thus, German unemployment was very high even in historical comparison: in West Germany such high values have never been taken on since the beginning of the fifties.[3] In East Germany, there was no decline of unemployment, even at the beginning of the Schröder Government; starting with 16.6 percent in October 1998 it more or less continuously rose up to its historical high of 19.4 percent in the first three months of 2005. This holds despite the fact that in 1998 Chancellor GERHARD SCHRÖDER gave top priority to the reconstruction of East Germany ("Aufbau Ost").[4] Moreover, just before the general elections in 2002, when it became obvious that the aspired labour market goals could not be reached, a committee chaired by PETER HARTZ, a board member of Volkswagen AG, launched a labour market programme, called Hartz I to Hartz IV, which should reduce unemployment up to two millions. Though this programme was not without success, first achievements could only be observed at the end of the Schröder government, and the reduction of unemployment was far less than promised.[5]

[3] Nevertheless, as shown below, the empirical evidence that unemployment had a major impact on the survey results of the Schröder government and, therefore, also on its electoral success or defeat, respectively, is extremely thin; the corresponding results are far from any statistical significance. With respect to the inflation rate, they even have the 'wrong' sign. This might have different reasons, which will be discussed later. At the moment, we locate the somewhat curious fact that a government that promised to reduce unemployment but clearly failed has nevertheless been re-elected in 2002, even if the margin was rather small. And in 2005, when the government failed to become re-elected again, the Social Democrats, the party of Chancellor GERHARD SCHRÖDER, were very close behind the Christian Democrats. Thus, they still were in the government up to October 2009, but in a coalition with the Christian Democrats, the new Chancellor, ANGELA MERKEL, being from this party.

[4] In the following, for the purpose of comparison, we first shortly recapitulate results of earlier German governments as documented in the literature (*Section 2*). The period of the Kohl government is discussed in somewhat more detail because up to today there are hardly any results available covering the whole period of this government.[6] In *Section 3* results for the Schröder government are presented. In the final *Section 4*, possible reasons are discussed why we might be unable to find a significant impact of the economic development on the popularity of this government.

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3. <u>Source of the data</u>: Time series data bank of the German Bundesbank (http://www.bundesbank.de/statistik/statistik_zeitreihen.php).

4. See for this: Aufbau Ost wird Chefsache, *Süddeutsche Zeitung*, November 11, 1998, p. 6.

5. See for this, for example, B. BOOCKMANN et al. (2007).

6. The results in L.P. FELD and G. KIRCHGÄSSNER (1998, 2000) do only cover the period up to 1996 but not the last two years of this government.

2 Popularity Functions for Earlier Periods

[5] Results for the first 35 years of the Federal Republic of Germany are presented, for example, in G. KIRCHGÄSSNER (1986).[7] With monthly data for the period from January 1951 to October 1966, dominated by the Christian Democrats and the two Chancellors KONRAD ADENAUER und LUDWIG ERHARD, we get the following results for the two major parties:[8]

(1a) $\text{CDU}_t = \underset{(4.74)}{14.448} + \underset{(14.87)}{0.736}\,\text{CDU}_{t\text{-}1} - \underset{(-2.61)}{0.457}\,\text{UR}_t - \underset{(-2.93)}{0.256}\,\text{IR}_t - \underset{(-1.02)}{0.010}\,\text{TR}_t + \hat{u}_{1,t}$

$\bar{R}^2 = 0.84, \quad \hat{h} = \text{-}2.26, \quad DF = 185.$

(1b) $\text{SPD}_t = \underset{(4.76)}{9.713} + \underset{(12.97)}{0.680}\,\text{SPD}_{t\text{-}1} + \underset{(0.10)}{0.014}\,\text{UR}_t + \underset{(2.08)}{0.148}\,\text{IR}_t + \underset{(2.66)}{0.024}\,\text{TR}_t + \hat{u}_{2,t}$

$\bar{R}^2 = 0.81, \quad \hat{h} = \text{-}2.89, \quad DF = 185.$

CDU and SPD are the shares of the two major parties in the surveys of the Institut für Demoskopie, Allensbach, UR is the seasonally adjusted unemployment rate, IR is the inflation rate of the consumer price index (compared with the same month of the preceding year), and TR a linear trend.

[6] These results show the well-known picture: There was high unemployment after World War II; the further it has been reduced, the larger the support for the CDU/CSU became. In this process, it mainly absorbed the supporters of small parties, in particular the 'German Party' (Deutsche Partei, DP) and 'Community of Expellees and Disenfranchised' (Bund der Heimatvertriebenen und Entrechteten, BHE) which were its coalition partners in the beginning. Thus, it hardly affected the opposition. This is different with respect to inflation. Losses of the Christian Democrats due to rising inflation mainly benefited the Social Democrats. Finally, we find a positive long-run trend for the SPD and a negative one for the CDU/CSU. The latter one is, however, not statistically significant.

[7] There are no separate estimates for the three years of the first Grand Coalition from 1966 to 1969, as this period is too short to perform reliable estimates. Minimally, you need a period of six, better eight years in order not to be too vulnerable for spurious correlations that might appear during different phases of the business cycle. B.S. FREY and F. SCHNEIDER (1979) include this period in their estimates ranging from 1951 to 1969. However, because they use annual data, it is totally impossible to draw any conclusions with respect to these three observations: the results are completely dominated by the CDU/CSU governments up to 1966.

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7. There, the theoretical model behind these estimates is presented. This is not replicated here. – Originally, the results are from G. KIRCHGÄSSNER (1976, p. 117). There are also presented additional results as well as detailed descriptions of the data.

8. See G. KIRCHGÄSSNER (1986, p. 427). Popularity data are from the Institut für Demoskopie, Allensbach. They are collected more or less regularly on a monthly basis. Missing observations are linearly interpolated; if more than one survey has been undertaken within one month, averages are used. – The numbers in parentheses are the t-values of the estimated parameters, $\bar{R}^2$ is the adjusted multiple coefficient of determination, h the value of the Durbin h-Test and DF the number of degrees of freedom of the t-statistics.

[8] Using monthly data from January 1971 to August 1982, the following estimates for the period of the social-liberal coalition with the Chancellors WILLY BRANDT and HELMUT SCHMIDT are given in G. KIRCHGÄSSNER (1986, p. 427):[9)]

(2a) $\quad CDU_t = \underset{(5.68)}{10.833} + \underset{(17.97)}{0.733\ CDU_{t-1}} + \underset{(3.99)}{0.341\ UR_t} + \underset{(1.51)}{0.161\ IR_t} + \hat{u}_{1,t}$

$\quad\quad\quad\quad SER = 1.597, \quad \hat{h} = -0.29, \quad DF = 135.$

(2b) $\quad SPD_t = \underset{(6.43)}{15.149} + \underset{(17.97)}{0.733\ SPD_{t-1}} - \underset{(-5.35)}{0.609\ UR_t} - \underset{(-2.88)}{0.404\ IR_t} + \hat{u}_{2,t}$

$\quad\quad\quad\quad SER = 1.820, \quad \hat{h} = 0.77, \quad DF = 135.$

The governing party, the SPD, loses votes if inflation, and in particular if unemployment rises. The latter effect was mainly responsible for the loss of power in 1982. The CDU/ CSU profits from rising unemployment and inflation, the significance of the latter effect is, however, slightly below the 10 percent level.

[9] Considering the time of the Kohl government and using monthly data, L.P. FELD und G. KIRCHGÄSSNER (1998, p. 551) present the following estimates for the period from January 1984 to December 1996 (156 observations) for the government (CDU/CSU and F.D.P.) and for the opposition (SPD and Greens):[10)]

(3a) $\quad GP_t = \underset{(5.43)}{98.597} + \underset{(11.51)}{0.602\ GP_{t-1}} + \underset{(4.68)}{0.251\ GP_{t-2}} + 0.147\,(\underset{(-2.74)}{-3.602\ UR_t}$

$\quad\quad\quad - \underset{(-1.87)}{8.388\ CUR_t} - \underset{(-3.11)}{4.599\ IR_t} - \underset{(-3.46)}{5.170\ D_{9103}} + \underset{(4.65)}{6.847\ D_{9407}}) + \hat{u}_{1,t}$

$\quad\quad\quad \overline{R}^2 = 0.769, \quad SER = 1.495, \quad Q(10) = 11.215, \quad J.\text{-}B. = 0.566.$

(3b) $\quad OP_t = \underset{(0.39)}{6.328} + \underset{(11.51)}{0.602\ OP_{t-1}} + \underset{(4.68)}{0.251\ OP_{t-2}} + 0.147\,(\underset{(2.74)}{3.279\ UR_t}$

$\quad\quad\quad + \underset{(1.74)}{6.859\ CUR_t} + \underset{(2.05)}{2.652\ IR_t} + \underset{(2.78)}{4.053\ D_{9103}} - \underset{(-3.51)}{5.050\ D_{9407}}) + \hat{u}_{2,t}$

$\quad\quad\quad \overline{R}^2 = 0.557, \quad SER = 1.463, \quad Q(10) = 16.516, \quad J.\text{-}B. = 0.812.$

GP is the share of the government, consisting of the Christian and the Free Democrats, OP the share of the (parliamentary) opposition, consisting of the Social Democrats and the Green Party. CUR is the covered unemployment rate. This was the first time that this variable has been included into an estimation of a German popularity function, the reason for it being that this rate was extraordinarily high just after unification. D_{9103} and D_{9407} are dummy variables

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9. SER is the standard error of the regression. – The two equations are estimated as a system using FIML. This ensures that the coefficients of the lagged endogenous variables are identical in both equations. Moreover, no values for the multiple determination coefficient are reported.

10. These two equations are part of an estimated system including a third equation for the other parties. Q(k) is the value of the Box-Pierce-Q-Statistic for autocorrelation of the residuals with k degrees of freedom, J.-B. the value of the Jarque-Bera Statistic to test for normality of the residuals. In contrast to the estimates above, in these equations the long-run coefficients of the exogenous variables are presented.

for March 1991 and July 1994. In March 1991, Chancellor HELMUT KOHL broke his promise that he would not increase taxes in order to finance German unification. After the state election in Saxony-Anhalt in June 1994 the first de facto coalition between the SPD and the former communist party PDS came about. As the results show, both events had a severe impact on the popularity of the government as well as the opposition.

[10] With respect to the economic variables, we see again the usual picture: the coefficients of the unemployment and inflations rates are in the government's equation significantly negative and in the opposition's equation significantly positive. The same holds for the impact of the covered unemployment rate, but its significance is only at the 10 percent level.

[11] For the new federal states in East Germany only 54 observations were available, from July 1992 to December 1996. The following results were derived:[11]

(4a) GP_t = 79.921 + 0.212 GP_{t-1} + 0.179 GP_{t-2} +– 0.609 (1.893 UR_t
(7.07) (2.47) (2.23) (-2.78)

– 0.839 CUR_t – 0.516 IR_t – 0.292 TR_t + 0.306 BS_t) + $û_{1,t}$
(-4.10) (-2.80) (-3.41) (2.51)

$\overline{R}^2$ = 0.576, SER = 2.129, Q(10) = 19.734, J.-B. = 2.051.

(4b) OP_t = 21.390 + 0.212 OP_{t-1} + 0.179 OP_{t-2} +– 0.609 (– 1.647 UR_t
(1.71) (2.47) (2.23) (-2.20)

– 0.832 CUR_t + 0.288 IR_t + 0.320 TR_t – 0.211 BS_t) + $û_{2,t}$
(-3.66) (1.49) (2.90) (-1.60)

$\overline{R}^2$ = 0.769, SER = 1.495, Q(10) = 11.215, J.-B. = 0.566.

BS is a variable representing the 'Back-Swing Effect', i.e. that, just before the new election, many voters go back to the party they voted for last time. This effect can often be observed; a corresponding variable has already been included in the estimations of the seminal paper by C.A.E. GOODHARD and R.J. BHJANSALI (1970).[12]

[12] We find again the same pattern. In comparison with the estimates for West Germany we find much smaller coefficients of the economic variables,[13] but the coefficient of the covered unemployment rate is much more significant. The latter might be due to the fact that after the unification covered unemployment was much more important in the new federal states.

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11. See L.P. FELD and G. KIRCHGÄSSNER (1998, p. 563). This is again part of an estimated system with the popularity of the other parties as the third variable. In East Germany, this third variable represents mainly the PDS.

12. This ‚Back-Swing-Effect' before an election is part of the 'electoral cycle'. This cycle describes the following pattern: After an election the government loses support, first in larger and later on in smaller steps. Just before the next election, it can, however, regain a large part of these voters. See for this, for example, G.T. SOLDATOS (1994).

13. When interpreting the coefficients it has to be taken into account that the two variables take on much higher values in East Germany, and the variance is also much higher than in West Germany.

[13] In the following, we only consider the period after unification. There, we have data for West and East as well as the whole of Germany. If we only include the unemployment and inflation rates as economic variables into the equation, and with monthly data from December 1991 to September 1998 (82 observations), for the whole of Germany we get the following results for the popularities of the government and the opposition (using the definitions given above):[14]

$$(5a) \quad GP_t = \underset{(5.65)}{24.702} + \underset{(11.14)}{0.688}\, GP_{t-1} - \underset{(-5.40)}{1.992}\, UR_t - \underset{(-3.58)}{0.691}\, IR_t + \underset{(34.23)}{5.864}\, D_{9407} + \hat{u}_{1,t}$$

$$\bar{R}^2 = 0.824, \quad SER = 1.399, \quad Q(5) = 1.654, \quad J.\text{-}B. = 0.608.$$

$$(5b) \quad OP_t = \underset{(3.22)}{7.864} + \underset{(7.50)}{0.645}\, OP_{t-1} + \underset{(4.71)}{0.804}\, UR_t + \underset{(2.97)}{0.512}\, IR_t - \underset{(-9.18)}{1.778}\, D_{9407} + \hat{u}_{2,t}$$

$$\bar{R}^2 = 0.729, \quad SER = 1.297, \quad Q(5) = 7.462, \quad J.\text{-}B. = 1.032.$$

Both economic variables have in both equations the expected signs and are highly significantly different from zero. The results also indicate that the collaboration between the SPD and the PDS, starting in June 1994 in Saxony-Anhalt did benefit the government and hurt the opposition; but the quantitative effect on the opposition is much smaller than the one on the government.[15]

[14] If we perform the same estimates for West Germany from February 1991 to September 1998 with 92 observations, and include the West German unemployment rate (URW), we get the following results:

$$(6a) \quad GP_t = \underset{(4.52)}{20.715} + \underset{(11.14)}{0.727}\, GP_{t-1} - \underset{(-4.02)}{0.807}\, URW_t - \underset{(-3.19)}{0.728}\, IR_t - \underset{(-11.07)}{4.760}\, D_{9103}$$

$$+ \underset{(37.92)}{5.861}\, D_{9407} + \hat{u}_{1,t}$$

$$\bar{R}^2 = 0.765, \quad SER = 1.459, \quad Q(5) = 5.092, \quad J.\text{-}B. = 1.506.$$

$$(6b) \quad OP_t = \underset{(3.40)}{11.016} + \underset{(9.17)}{0.643}\, OP_{t-1} + \underset{(3.51)}{0.698}\, URW_t + \underset{(1.21)}{0.3.00}\, IR_t + \underset{(9.231)}{3.490}\, D_{9103}$$

$$- \underset{(-25.10)}{4.524}\, D_{9407} + \hat{u}_{2,t}$$

$$\bar{R}^2 = 0.712, \quad SER = 1.482, \quad Q(5) = 7.157, \quad J.\text{-}B. = 1.296.$$

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14. The estimates have been performed using EViews, Version 5.1. They cover those periods for which we have political as well as economic data. To account for possible heteroskedasticity and/or autocorrelation, we applied Newey-West standard errors for the t-statistics. If we use the traditional standard errors, we get similar but somewhat less significant results for the effects of the economic variables. – The popularity series are again from the Institut für Demoskopie, Allensbach. Data for the (seasonally adjusted) unemployment rates and for the consumer price index are taken from the data bank of the German Bundesbank. (http://www.bundesbank.de/statistik/statistik_zeitreihen.php).

15. For all estimated equations presented for this period it holds that – given the results of the Box-Pierce and Jarque-Bera statistics – we neither find significant autocorrelation of the residuals, nor can we reject the null hypothesis that these residuals are normally distributed.

[15] Because we have some additional observations, we can also include the dummy variable for the broken electoral promise of the Kohl government, D_{9103}. It shows the expected (and from earlier estimates known) impact: There is a considerable popularity loss of the government benefiting the opposition. With two exceptions, all other results are similar to those for the whole of Germany: First, inflation does not have a significant impact on the oppositions' popularity, and the size of the respective coefficient is only somewhat more than half of the size in the equation for the whole of Germany. Between 1991 and 1998, a reduction of inflation might have benefited the government but hardly hurt the opposition. Second, the coefficient of the dummy variable D_{9407} is much higher. Apparently, the collaboration between the SPD and the PDS in Saxony-Anhalt was detrimental for the opposition in the old federal states, and, because this happened just before the general election in 1994, it saved the electoral victory for the CDU/CDU, but in the new federal states the SPD and/or the Greens might rather have benefited from it.

[16] This can also be shown when we estimate these equations for the new federal states. There we have, however, only data from December 1993 to September 1998 and, therefore, only 58 observations:[16)]

$$
\begin{aligned}
\text{(7a)} \quad GP_t = \ & 23.928 + 0.438\,GP_{t-1} + 0.233\,GP_{t-2} - 0.791\,URE_t - 0.159\,IR_t \\
& (3.38) \quad (2.67) \qquad\quad (1.56) \qquad\quad (-3.14) \qquad\quad (-0.26) \\[4pt]
& + 1.908\,D_{9407} + \hat{u}_{1,t} \\
& \quad (2.70) \\[4pt]
& \bar{R}^2 = 0.832, \ \ SER = 1.879, \ \ Q(5) = 8.958, \ \ \text{J.-B.} = 0.194.
\end{aligned}
$$

$$
\begin{aligned}
\text{(7b)} \quad OP_t = \ & 3.963 + 0.388\,OP_{t-1} + 0.142\,OP_{t-2} + 0.892\,URE_t + 0.821\,IR_t \\
& (1.08) \quad (2.94) \qquad\quad (0.91) \qquad\quad (3.00) \qquad\quad (1.76) \\[4pt]
& + 9.918\,D_{9407} + \hat{u}_{2,t} \\
& \quad (10.06) \\[4pt]
& \bar{R}^2 = 0.748, \ \ SER = 2.062, \ \ Q(5) = 8.023, \ \ \text{J.-B.} = 0.016.
\end{aligned}
$$

URE is the East German unemployment rate. Contrary to the situation in the old federal states, the SPD and/or the Greens benefit from the collaboration between the SPD and the PDS, but these gains cannot at all equalise the losses in West Germany. These gains come at the expense of other parties (OTP), i.e. mainly at the expense of the PDS, as can be shown in the following equation:

$$
\begin{aligned}
\text{(7c)} \quad OTP_t = \ & 10.983 + 0.270\,OTP_{t-1} + 0.187\,OTP_{t-2} + 0.236\,URE_t - 0.809\,IR_t \\
& (2.91) \quad (1.72) \qquad\quad\ (1.20) \qquad\quad\ (2.26) \qquad\quad (-1.37) \\[4pt]
& - 11.571\,D_{9407} + \hat{u}_{3,t} \\
& \quad (-26.597) \\[4pt]
& \bar{R}^2 = 0.662, \ \ SER = 1.788, \ \ Q(5) = 4.175, \ \ \text{J.-B.} = 0.922.
\end{aligned}
$$

16. In contrast to other estimations, we use here (as in L.P. FELD und G. KIRCHGÄSSNER (1998)) two lagged endogenous variables. The coefficients of the two periods lagged endogenous are not significantly different from zero, but without their inclusion the Box-Pierce-Q-Statistic indicates considerable autocorrelation of the residuals.

Whenever the situation on the East German labour market deteriorates, the government loses and the (parliamentary) opposition gains votes. The other parties, in particular the PDS, do not gain from this (at least not during this period). Inflation does not seem to have a major impact on the voters' decisions: only the coefficient in the opposition's equation is significantly different from zero, and only at the 10 percent level, while the two other coefficients are far away from any statistical significance. The reason for this might be that the price development is different in the old and new federal states. While the price index for Germany mainly represents the West German development, it might hardly be representative for East Germany.[17]

[17] Taking all results together, during the first five decades of the Federal Republic of Germany unemployment and inflation had a considerable impact on the voters' decisions, at least as far as they are reflected in the survey results. When unemployment and/or inflation rose, the government lost support, even if this was not always fully to the benefit of the (parliamentary) opposition. With respect to unemployment this also holds for the new federal states, but not necessarily also with respect to inflation. Besides these economic impacts there have been political events which had a considerable short-run impact on voting behaviour, even if their long-run impact might have been of minor importance. If those happened just before a general election, they might, however, have had considerable impact on the electoral results. This does not only hold for the collaboration of the SPD and the PDS in Saxony-Anhalt starting in summer 1994, and probably allowed Chancellor HELMUT KOHL to stay in power after the election of October 16, 1994, but also for the rather clumsy behaviour of Chancellor KONRAD ADENAUER after the building of the Berlin Wall on August 13, 1961. He had to pay the costs for his misjudgements of the political situation in the general election on September 17, 1961, where he lost the absolute majority which before had seemed to be very safe.[18] On the long-run effects of such events one can only speculate. However, at least it holds that the collaboration of the SPD and the PDS in the new federal states, starting in 1994, did not impair the electoral victory of the SPD four years later in the general election on September 27, 1998.

3   Results for the Schröder Government

[18] Compared to earlier results, there is a dramatic change of the impact of the economic variables on political popularity when we consider the Schröder government. For unemployment, we do no longer find a significant impact, and the impact of inflation, if it exists at all, might even go into the 'wrong' direction. As shown in the following, this holds for East as well as for West Germany (and, therefore, also for the whole of Germany), and quite independent of the concrete specification of the estimated equation.

[19] Because the government can hardly be hold responsible for the economic situation just after its election, we exclude (as has been done in earlier papers as well) the first year of the new government. Thus, with monthly data from October 1999 to September 2005 we have 72

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17. Separate data for West and East Germany are not available.

18. See for this G. KIRCHGÄSSNER (1977, p. 512, FN 12).

observations.[19] Using the simplest specification, using OLS we get the following results for the whole of Germany:

(8a) $GP_t = 12.240 + 0.799\,GP_{t-1} - 0.484\,UR_t + 0.656\,IR_t + \hat{u}_{1,t}$
         (2.08)   (10.85)   (-1.43)   (1.59)

$\bar{R}^2 = 0.770$, SER $= 1.806$, Q(5) $= 10.996$, J.-B. $= 10.639$.

(8b) $OP_t = 5.181 + 0.869\,OP_{t-1} + 0.237\,UR_t - 0.816\,IR_t + \hat{u}_{2,t}$
         (1.88)   (15.32)   (0.60)   (-2.08)

$\bar{R}^2 = 0.841$, SER $= 1.817$, Q(5) $= 10.825$, J.-B. $= 4.587$.

(8c) $OTP_t = 1.069 + 0.812\,OTP_{t-1} + 0.025\,UR_t + 0.344\,IR_t + \hat{u}_{3,t}$
         (0.67)   (12.36)   (0.19)   (1.61)

$\bar{R}^2 = 0.721$, SER $= 0.911$, Q(5) $= 3.413$, J.-B. $= 10.785$.

The results differ from those of earlier periods not only with respect to the impact of the economic variables, but also that we now find, at least at the 10 percent level, significant autocorrelation of residuals in the equations of the government, consisting of the SPD and the Greens, and of the parliamentary opposition, consisting of the CDU/CDS and F.D.P.. Moreover, the null hypothesis of normality of the estimated residuals can be rejected even at the 1 percent level in the equations of the government and of the other parties.[20] To take account of this, we used the Newey-West procedure to correct the variances of the estimated parameters. However, this hardly changes the results.

[20] Unemployment does not seem to have an impact in any of the three equations. If we only consider the size of the estimated parameters, the impact is smaller than in the nineties, but comparable with those up until 1982. However, contrary to those earlier results, in the period of the Schröder government the results are far from any conventional significance level. This does not change if we estimate the three equations as a system of seemingly unrelated regressions and perform a Wald-test to check whether unemployment has a significant impact on this system. With a value of 1.876, two degrees of freedom and a p-value of 0.39, the corresponding χ^2-statistic is far from any statistical significance. Even more astonishing are (at least at a first glance) the results for inflation. The higher the inflation rate, the lower is the share of the CDU/CSU and the F.D.P.. Thus, we even get a 'wrong' sign in the equation of the opposition. However, the total effect on the system of equations is also not significant: we get a χ^2-statistic of 4.301 and a p-value of 0.12 (with 2 degrees of freedom).

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19. The results are robust with respect to small changes of the sample size.

20. In the equation of the opposition the significance is just above the 10 percent level.

	Coefficient of					
Dependent Variable	Unemployment Rate	Inflation Rate	Dummy Variables	$\overline{R}^2$	Q(5)	J.-B.

Table 1: Popularity Functions for the Schröder Government

Dependent Variable	Unemployment Rate	Inflation Rate	Dummy Variables	$\overline{R}^2$	Q(5)	J.-B.
Germany						
GP	-0.484 (-1.43)	0.656 (1.59)	no	0.770	10.996(*)	10.639**
GP	-0.277 (-0.86)	0.606 (1.49)	yes	0.871	15.846**	0.902
OP	0.237 (0.60)	-0.816* (-2.08)	no	0.841	10.825(*)	4.588
OP	0.293 (0.79)	-0.682(*) (1.91)	yes	0.900	17.188**	1.385
OTP	0.025 (0.19)	0.344 (1.61)	no	0.721	3.413	10.785**
OTP	-0.110 (-1.33)	0.161 (0.83)	yes	0.798	3.344	1.226
West Germany						
GP_w	-0.468 (-1.52)	0.662 (1.60)	no	0.812	8.034	1.432
GP_w	-0.391 (-1.29)	0.585 (1.47)	yes	0.870	17.125**	0.627
OP_w	0.296 (0.79)	-0.753(*) (-1.88)	no	0.840	10.887(*)	2.613
OP_w	0.379 (1.05)	-0.618(*) (-1.70)	yes	0.887	22.310**	0.300
OTP_w	0.078 (0.59)	0.352 (1.61)	no	0.532	5.025	0.445
OTP_w	-0.028 (-0.25)	0.204 (0.90)	yes	0.599	3.293	0.781
East Germany						
GP_E	-0.317 (-0.95)	0.373 (0.60)	no	0.571	7.646	5.781(*)
GP_E	-0.023 (-0.07)	0.463 (0.75)	yes	0.688	4.844	7.843*
OP_E	0.970** (2.73)	-1.530** (-3.16)	no	0.779	1.910	0.440
OP_E	0.797* (2.52)	-1.259** (-2.87)	yes	0.825	4.855	0.567
OTP_E	-0.452 (-1.56)	0.968* (2.18)	no	0.802	6.535	6.896*
OTP_E	-0.637* (-2.36)	0.662 (1.43)	yes	0.842	5.471	1.067

The numbers in parentheses are the t-statistics of the estimated parameters. '**', '*' or. '(*)' indicate that the corresponding null hypothesis can be rejected at the 1, 5, or 10 percent significance level, respectively. Q(k) is the value of the Box-Pierce-Q-Statistic for autocorrelation of the residuals with k degrees of freedom, J.-B. the value of the Jarque-Bera Statistic to test for normality of the residuals.

[21] The rejection of the normality hypothesis of the estimated residuals might be due to some events during this period that are quite independent from economic development. In the government's equation we find a positive outlier in October 2002, the month of the election, and a negative one two months later in December 2002. There might have been some disillusionment after the election. In the opposition's equation we find negative outliers at the beginning of 2000. This might be in connection with the scandal of illegal donations to the CDU. Moreover, in December 2002 the opposition might have benefited from the disillusionment of the government. In the equation of the other parties, we find a positive outlier in July 2005 which might be a reaction to the merger between the PDS and the 'Electoral Alternative Social Justice' (Wahlalternative Soziale Gerechtigkeit, WASG), to build up the new 'Left Party', in the campaign for the federal election in 2005.

[22] We can represent these events with dummy variables, taking on the value of one in the respective months and zero elsewhere.[21] Most of the estimated parameters are significant, some even very highly. Correspondingly, as can be seen from *Table 1*, the values of the multiple determination coefficients clearly rise. This has, on the other hand, hardly any effect on the estimated impact of the economic variables; there are no major changes neither of the size nor of the significance of the estimated coefficients. Unemployment does not have any significant impact. The impact of the inflation rate is only significant at the 10 percent level; it still goes, however, into the wrong direction: the opposition loses and does not gain votes with rising inflation.

[23] As the results in *Table 1* also show, the estimated coefficients in the equations for the whole of Germany are very close to those in the equations for West Germany. There, the coefficients of the unemployment rate are in all equations far from any statistical significance as well. This is somewhat different in the equations for East Germany. There, labour market development also has hardly any effect on the government's popularity, but the parliamentary opposition benefits from increasing unemployment at the expense of the other parties, mainly the PDS.

[24] The impact of inflation on the popularity of government and opposition that can hardly be explained mainly exists in East Germany. There, the negative impact on the opposition's popularity is even significant at the 1 percent level. In the equation without dummy variables we find a positive impact on the popularity of the other parties which is significant at the 5 percent level. Thus, rising inflation benefits the PDS at the expense of the CDU/CSU.

[25] One might object that the approach to reach these results (which is the traditional one when estimating popularity functions) does not take into account that the variables might be non-stationary. Thus, the results might not be very meaningful. It is, however, difficult to argue that these variables are non-stationary, as they are bounded between zero and one.[22] Nev-

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21. Altogether, we use 5 dummy variables: for January 2000, February 2000, October 2002, December 2002 as well as July 2005.

22. This would be different for logistic transformations of the popularity data. For the data we use this would, however, hardly lead to different results, because the level of the government's popularity, for example, is correlated with 0.997 with its logistic transformation.

ertheless, it might be that the variables are so close to non-stationarity that models for such variables are better suited to represent the generating process of these data. On the other hand, even if the data are non-stationary, OLS estimates for the levels of the data still lead to consistent estimates. The problem is, however, that the estimated variances are downwards biased. Thus, we can hardly trust the test results.

[26] The time series used are, however, rather short. Thus, the power of unit root and cointegration tests is rather low. In such a situation, we can expect that the null-hypotheses can hardly be rejected and/or that we find contradictory results. Nevertheless, such tests can be performed. For the period from November 1998 to September 2005, the results of applying the Dickey-Fuller test (ADF) as well as the Kwiatkowski-Phillips-Schmidt-Shin test (KPSS) are given in *Table A1* in the *Appendix*. The former takes the non-stationarity of the series as null-hypothesis, the latter the stationarity.[23] We get some conflicting results. Both null-hypotheses can be rejected for the government's popularity in the equation for the whole of Germany; for the KPSS test at the 1 percent and for the ADF-test at the 10 percent significance level. A similar result holds for the popularity of the opposition in the new federal states. The majority of the results indicate, however, that the popularity as well as our economic data might be realisations of non-stationary processes or that models for such processes are better able to statistically represent the processes generating these data, respectively.

[27] Taking this into account and applying the Johansen-Procedure we do not find any indication for cointegration between unemployment and the popularity series. This is independent of whether we include one or two popularity series together with the corresponding unemployment rate into the system of equations. Due to the small sample size this procedure might, however, be highly problematic in our case.[24] Thus, we employed the Engle-Granger procedure as an alternative. The results are presented in *Table A2*. They are not really better. The estimates might be super-consistent, but they are, as the small values of the R^2 show, highly biased. In two cases, where the test result might make us believe that there is cointegration, the values of the adjusted R^2 are even negative. This indicates that the popularity series are rather stationary than that a relation between non-stationary variables exists. The only case where we find a – at least at the 10 percent level – significant cointegrating relation is between the government's popularity and unemployment in the equation for the whole of Germany. But the multiple correlation coefficient is again very low. All these results indicate that there was no relation between unemployment and inflation on the one and the popularity series on the other side in this period, at least not a stable one. Thus, there is a basic difference between the period of the Schröder government and those of all earlier governments.

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23. On the different philosophies behind these two test procedures see U.K. MÜLLER (2005). A description of the test procedures for unit roots and cointegration is, for example, given in G. KIRCHGÄSSNER and J. WOLTERS (2007, Chapters 5 and 6).

24. The results are very sensitive with respect to small changes of the sample size, i.e. on the assumption since when voters hold the government responsible for economic development.

4 Concluding Remarks: Possible Reasons for the Differences

[28] What does this imply? Do we have to take leave from the concept of popularity and voting functions and can or even should we assume that there will be no relation anymore between economic development and the electoral success of German governments in the future? Such conclusions would certainly go too far. But what is the appropriate conclusion?

[29] The results can be discussed from two points of view: a statistical and a substantive one. Taking on the statistical perspective it has to be mentioned that the sample size of 6 years (or 72 observations) is relatively small. Thus, spurious independence or correlations cannot be excluded. Once a future German government will again survive more than two electoral periods we will get better data to draw such far-reaching conclusions.[25] Moreover, during this period the variances of the two economic variables were rather low. The variance of the inflation rate was only 0.310, i.e. only 21 percent of 1.501, the value it took on under the Kohl government. A similar result holds for the unemployment rate; in West Germany its variance was only 58 percent and in East Germany even only 17 percent of the variance during the Kohl government. The smaller the variance of a variable is, the more difficult it is − ceteris paribus − to get statistically significant results. This holds in particular if the sample size is small.

[30] Moreover, other events had a much stronger effect on the popularity of the government and the different parties during this period than economic development. The dummy variables which represent at least some of these events increase, for example, the adjusted R^2 in the equation of the government's popularity for the whole of Germany compared with a first order autoregressive process from 0.765 by 0.103 to 0.868, while the two economic variables increase it only by 0.005 to 0.770. This could have an impact on the size and the significance of the estimated coefficients, however, only if these other variables would be correlated with the economic ones. But this is not the case. If we regress the unemployment rate on the dummy variables, we get an adjusted R^2 of -0.011, and for the inflation rate of -0.046. Thus, from a statistical point of view, the economic variables are totally independent of the dummy variables, i.e., there was − at least in a statistical sense − no relation between those other events which had a major impact on the government's popularity and the economic development. This is plausible, if we consider, for example, the scandal and the crises of the CDU in 2000 or the Iraq War in 2003. This independence is also reflected in the fact that the inclusion of the dummy variables had hardly any effect on the estimated effects of the economic variables, as the results in *Table 1* show.

[31] To test whether the effects of the economic variables have been really different in the Schröder government compared to the Kohl area, we estimated the popularity functions for both periods together allowing for structural breaks in all variables. Then we performed Wald test for the equality of the coefficients of the economic variables in both periods. The results

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25. As the results for the Kohl government after unification show, it is at least sometimes possible to get meaningful results even with smaller sample sizes. Thus, the small sample size does not necessarily have to be the only reason for our results.

are given in *Table 2*. We get hardly any significant results for the unemployment rate, but nearly always significant results for the inflation rate. Thus, the insignificance of the estimated impact of unemployment might be due to the fact that the sample is rather small and does not necessarily indicate a behavioural change, while the estimated coefficients of the inflation rate indicate such a change.

Table 2: Differences of the Estimated Parameters		
Dependent Variable	Coefficient of	
	Unemployment Rate	Inflation Rate
Germany		
Government	0.725(*) (1.79)	1.296** (2.80)
Opposition	0.511 (1.33)	1.194** (3.07)
Other Parties	0.381 (1.45)	0.020 (0.05)
West Germany		
Government	0.416 (1.06)	1.313** (2.66)
Opposition	0.320 (0.74)	0.918* (2.02)
Other Parties	0.254 (1.38)	0.266 (0.89)
East Germany		
Government	0.976* (1.98)	0.683 (0.83)
Opposition	0.187 (0.47)	2.291** (2.96)
Other Parties	0.945* (2.28)	1.868(*) (1.93)
The numbers in parentheses are the corresponding t-statistics of the estimated parameters. '**', '*' or. '(*)' indicate that the corresponding null hypothesis can be rejected at the 1, 5, or 10 percent significance level, respectively.		

[32] The question is how far voters really hold the government responsible for economic developments. Of course, governments usually try to exculpate themselves for bad economic developments, sometimes even rightly, but they do not always succeed. On the other hand, they always claim authorship for positive economic developments, quite independent of whether they really contributed to them or not. Thus, we have to distinguish how far (i) governments are really responsible, (ii) governments claim to be responsible, and (iii) governments are hold responsible by the electorate for economic development.

[33] The answers should be different for the two variables we employed, the unemployment and inflation rates. Even if it is often stated that employer and employee organisations are mainly responsible for labour market development, from the beginning of his government GERHARD SCHRÖDER claimed to be responsible. The Hartz legislation in 2002 demonstrated that the government has means to influence this development, even if the main effect of this legislation occurred after its demission.[26] Insofar it is astonishing that the estimates presented above do hardly provide evidence that labour market development had an impact on the different popularity series.

[34] This is different with respect to inflation. There, it might even be astonishing if voters (still) hold the government responsible. In a weaker sense, this was also true for former governments. The German Bundesbank and not the German government was responsible for monetary policy, and the independence of the Bundesbank was fixed in a law. There existed, of course, indirect influences; the federal government was mainly, for example, responsible for filling the leading positions in the Bundesbank.[27] Moreover, the government could also put pressure on the Bundesbank, and this to some effect.[28] Nevertheless, the possibilities of the German government to influence monetary policy were rather limited. Moreover, with the start of the floating between the German Mark and the U.S. Dollar at the beginning of the seventies and the new monetary policy of the German Bundesbank, it was declared that inflation is mainly a monetary phenomenon and monetary policy is able to manage it. Thus, it was hardly possible to hold the government responsible for inflation.[29] Insofar, it might be rather astonishing that the inflation rate had a significant impact on the Brandt/Schmidt and Kohl governments, even if this impact was less pronounced than the one of the unemployment rate.

[35] Since January 1999, and blatantly since the change of the DM to the Euro in January 2002, it is obvious that the situation is quite different. It is no longer the German Bundesbank, but the European Central Bank that is responsible for monetary policy in Europe and, therefore, also for the development of prices in Germany. To make the government responsible for this is apparently nonsense. Insofar, it is no surprise that most of the corresponding coefficients in *Table 1* are not significantly different from zero.[30] If we assume that voters take a responsible decision we should not suppose that they hold the government responsible for something it is not responsible, it cannot be responsible, and does also not claim to be responsible.

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26. On the effect of the labour market reforms see, for example, SACHVERSTÄNDIGENRAT (2007, S. 323ff.).

27. See for this R. VAUBEL (1997).

28. See for this B.S. FREY and F. SCHNEIDER (1981).

29. This does not exclude that politics can have a short-run impact. Before 1972, i.e. during the Bretton Woods-system of fixed exchange rates, the government was even more impotent with respect to inflation. However, at that time the notion that inflation is mainly a monetary phenomenon was much less common, even among economists. Thus, it is plausible that in such a situation voters hold the government responsible for price development.

30. A problem are rather those few coefficients which are statistically significant with the 'wrong' sign. They might be seen as statistical artefacts.

[36] Thus, we might conclude that inflation will no longer play a role for the decisions of German voters. In contrast to this, they might still hold it responsible for the labour market development. Once a government would succeed in staying in power for more than two electoral terms, we might get significant results again. And if we desist from the missing statistical significance, the results for the Schröder government show, after all, the same (expected) pattern as the results of former governments, and the quantitative effects are still not negligible.

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Appendix

Table A1: Results of Unit Root Tests		
Variable	ADF-Statistic	KPSS-Statistic
GP	-2.619(*)	0.780**
OP	-2.168	0.833**
OTP	-2.533	0.418(*)
UR	-0.651	0.588*
GP_W	-2.333	0.869**
OP_W	-2.403	0.833**
OTP_W	-3.499*	0.265
UR_W	-0.622	0.530*
GP_E	-3.822**	0.120
OP_E	-2.737(*)	0.696*
OTP_E	-2.167	0.477*
UR_E	-1.998	1.099**
IR	-1.959	0.373(*)

The tests have been performed for the levels of the time series. '**', '*' or. '(*)' indicate that the corresponding null hypothesis can be rejected at the 1, 5, or 10 percent significance level, respectively. Critical values are taken from J.G. MACKINNON (1991). The lag length of the ADF-test has been determined by the Hannan-Quinn criterion.

Table A2: Results of the Engle-Granger Cointegration Tests			
Dependent Variable	Coefficient of the Unemployment Rate	$\overline{R}^2$	ADF-Statistic
GP	-2.741 (-5.81)	0.316	-3.183(*)
OP	3.094 (5.24)	0.272	-2.025
OTP	-0.352 (-1.35)	0.012	-2.346
GP_W	-2.979 (-6.31)	0.353	-2.451
OP_W	2.869 (5.32)	0.278	-2.004
OTP_W	0.109 (0.64)	-0.008	-3.212(*)
GP_O	-0.304 (-0.53)	-0.010	-3.727*
OP_O	3.567 (5.53)	0.294	-2.615
OTP_O	-3.353 (-5.27)	0.274	-2.650

$\hat{t}$ is the value of the Dickey-Fuller Statistic to test for cointegration. '*' or '(*)' indicate that the corresponding null hypothesis can be rejected at the 5 or 10 percent significance level, respectively. Critical values are taken from J.G. MACKINNON (1991).

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